

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ANALYTICAL DATA, GEOGRAPHIC COORDINATES, AND SAMPLE LOCALITY
MAP OF GEOCHEMICAL SAMPLES FROM THE MOUNT HENRY ROADLESS AREA,
LINCOLN COUNTY, MONTANA

By

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Open-File Report 83-88

1983

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STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochemical survey of the Mount Henry Roadless Area (RARE II 01-666) in the Kootenai National Forest, Lincoln County, Montana. The Mount Henry Roadless Area was classified as a further planning area during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979.

Introduction

A geochemical survey was conducted in the proposed Mount Henry Roadless Area, Lincoln County, Montana, during the summer of 1981. This report presents the geographic coordinates and spectrographic and chemical analyses of the samples collected in the survey. A map showing all sample sites (fig. 1) is included. The samples collected and analyzed include: stream sediments from 65 of the first-order (unbranched) and second-order (below the junction of two first order) streams in and adjacent to the designated area; panned concentrates of stream sediments from 11 selected larger drainages; and 95 rock samples representing the major lithologic units in the area. Samples were collected by David F. Siems, Reinhard W. Leinz, Richard E. Van Loenen, and Gail Wadsworth, analyzed by Siems and Leinz, and data entered into the USGS RASS II data storage system by Christine McDougal.

Sample Preparation and Analytical Methods

Samples collected in the Mount Henry study area were prepared and analyzed in the U.S. Geological Survey laboratories in Golden, Colorado.

The rock samples were crushed in a jaw crusher, split in a Jones Splitter and pulverized in a vertical pulverizer to approximately 0.1 mm. Stream-sediment samples represent composites collected in the active part of the stream. The sediment was air dried and that portion passing through a 0.18 mm sieve was retained for analysis. Panned concentrate samples were wet panned to remove quartz, feldspars, organic material, and clays. They were air-dried and magnetite was removed with a hand magnet and discarded.

The samples were then split into two fractions. One fraction was saved for gold analysis. The second fraction was further concentrated using bromoform, specific gravity 2.86. The fraction of specific gravity less than 2.86 was discarded. The fraction of specific gravity greater than 2.86 was split further into paramagnetic (C-2) and nonmagnetic (C-3) fractions using a Frantz Isodynamic Separator set at 0.6 amperes. These two fractions were then hand ground using an agate mortar and pestle.

All samples were analyzed for thirty-one elements by a semiquantitative emission spectrographic method described by Grimes and Marranzino (1968). In addition, rocks and stream sediments were analyzed for mercury by an atomic absorption modification of the method of Vaughn and McCarthy (1964). Stream sediments were analyzed for zinc by atomic absorption spectrometry (Ward and others, 1969). Concentrates and selected rocks were analyzed for gold by atomic absorption (Thompson and others, 1968).

In addition, stream-sediment samples and rocks of the ferruginous Prichard Formation were leached with an oxalic-acid solution and the secondary iron-manganese oxide-bearing leachates were spectrographically analyzed. The use of secondary iron and manganese oxides in geochemical exploration is discussed by Chao and Theobald (1976). The oxalic-acid leaching procedure used in this work is based on that of Alminas and Mosier (1975).

The spectrographic analytical values are reported as the approximate geometric midpoints 0.15, 0.2, 0.3, 0.5, 0.7, and 1.0 (or multiples of ten) of concentration ranges whose respective boundaries are: 0.12, 0.18, 0.26, 0.38, 0.56, 0.83, and 1.2 (or multiples of ten) of these values. The precision of the spectrographic method is described by Motooka and Grimes (1976).

For the three elements (Au, Hg, and Zn) analyzed by atomic absorption, the reporting values vary with the element and with the concentration level for any given element. In general, the precision for the method tends to be lowest for those samples containing the element at or near its lower limit of determination.

Description of Tables

The lower limit of determination for all elements analyzed for this report are given in table 1. Because of potential matrix interference problems, the spectrographic technique was modified for the analyses of both the heavy-mineral concentrates and the oxalic-acid leaches. Thus, the lower limits of determination of the elements analyzed in these samples are all raised two reporting values above the normal lower limit value.

Tables 2-6 list the spectrographic and chemical analyses of samples of rocks, 0.18 mm size fraction of stream sediments, nonmagnetic and magnetic heavy-mineral concentrates, oxalic-acid leachates of selected rocks from the Prichard Formation, and oxalic-acid leachates of 0.177 mm size fraction of stream-sediment samples. Columns in which the element headings show the letter "s" below the element symbol are emission spectrographic analyses. Columns in which the element headings are designated as "aa" or "inst" below the element symbol are atomic absorption analyses. All element concentrations are given in parts per million (ppm), except those for Fe, Mg, Ca, and Ti, which are given in percent (pct). If a given element was not detected in a sample, then the letter "n" is entered. The symbol < preceding a given analytical value indicates the element was detected but was below the limit of determination; > indicates a value greater than the value shown.

References Cited

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- Ward, F. N., Nakagawa, H. M., Harms, T. F., and Van Sickle, G. H., 1969, Atomic absorption methods of analysis useful in geochemical exploration: *U.S. Geological Survey Bulletin* 1289, 45 p.

Table 1.--Lower limits of analytical determination for samples of rock, <0.18 mm size fraction of stream sediment, magnetic and nonmagnetic heavy-mineral concentrate and oxalic-acid leachates of 0.18 mm size fraction of stream sediments and rocks, Mount Henry Roadless Area, Montana

[(--) indicates not analyzed; "aa" following the element symbol indicates atomic absorption analysis; "inst" indicates the atomic absorption modified Hg technique; no suffix indicates emission spectrographic analysis. The values listed are in parts per million, except where percent is noted.]

Element	<u>Lower limit of determination</u>	
	Rock and stream sediment	Heavy-mineral concentrate and oxalic-acid leach
Fe percent	0.5	0.1
Mg percent	0.02	0.05
Ca percent	0.05	0.1
Ti percent	0.002	0.005
Mn	10	20
Ag	0.5	1
As	200	500
Au	10	20
B	10	20
Ba	20	50
Be	1	2
Bi	10	20
Cd	20	50
Co	5	10
Cr	10	20
Cu	5	10
La	20	50
Mo	5	10
Nb	20	50
Ni	5	10

Table 1.--Lower limits of analytical determination for samples of rock, <0.18 mm size fraction of stream sediment, magnetic and nonmagnetic heavy-mineral concentrate and oxalic acid leachates of 0.18 mm size fraction of stream sediments and rocks, Mount Henry Roadless Area, Montana--continued

[(--) indicates not analyzed; "aa" following the element symbol indicates atomic absorption analysis; "inst" indicates the atomic absorption modified Hg technique; no suffix indicates emission spectrographic analysis. The values listed are in parts per million, except where percent is noted.]

Element	<u>Lower limit of determination</u>	
	Rock and stream sediment	Heavy-mineral concentrate and oxalic-acid leach
Pb	10	20
Sb	100	200
Sc	5	10
Sn	10	20
Sr	100	200
V	10	20
W	50	100
Y	10	20
Zn	200	500
Zr	10	20
Th	200	500
Au-aa	0.05	>0.05 [depending on sample weight]
Hg-inst	0.02	--
Zn-aa	5	--

Table 2 - Chemical Analyses of Rocks, Mount Henry Roadless Area, Montana

Sample	Latitude	Longitude	Fe-pct.	Mg-pct.	Ca-pct.	Ti-pct.	Mn-pptm	Ag-pptm	As-pptm	Au-pptm	Ba-pptm	S
VMI11	48 51 22	115 37 40	5.00	2.00	.10	.30	150	N	N	200	1,000	
VMI10	48 52 21	115 27 57	3.00	3.00	.30	.30	300	N	N	100	2,000	
VMH11	48 54 48	115 38 48	3.00	5.00	.100	.30	150	N	N	300	1,500	
VMI12	48 56 22	115 38 .7	1.00	.15	.15	.15	300	N	N	30	300	
VNH13	48 56 22	115 38 7	3.00	.70	.10	.50	200	N	N	150	1,000	
VFH14	48 56 36	115 34 55	5.00	1.50	.20	.20	500	N	N	150	700	
VFH15	48 56 36	115 34 55	20.00	.20	.15	.07	2,000	N	N	20	100	
VFH16	48 56 45	115 36 12	7.00	2.00	.30	.30	700	N	N	100	1,000	
VFH17	48 56 36	115 36 5	7.00	1.50	.15	.50	500	N	N	100	1,000	
VFH18	48 56 8	115 34 19	5.00	1.50	.10	.50	500	N	N	150	1,000	
VNH19	48 56 34	115 33 38	3.00	.50	.07	.50	200	N	N	150	1,000	
VMH20	48 56 9	115 38 48	2.00	7.00	10.00	.20	1,000	N	N	150	700	
VNH21	48 51 54	115 37 16	.15	.07	<.05	.05	20	N	N	30	300	
VNH22	48 52 17	115 34 27	1.50	.30	1.50	.20	700	N	N	50	500	
VNH23	48 56 56	115 31 58	3.00	1.00	.15	.30	1,500	N	N	200	700	
VMI124	48 56 14	115 33 35	7.00	2.00	.05	.50	700	N	N	70	1,000	
VNH24	48 51 12	115 32 51	2.00	.30	.20	.30	200	N	N	70	700	
VNH25	48 52 42	115 32 29	5.00	2.00	.10	.30	300	N	N	150	1,000	
VMI26	48 54 2	115 32 35	5.00	1.50	.10	.50	300	N	N	200	1,000	
VNH27	48 26 38	115 32 20	3.00	1.00	.20	.30	300	N	N	300	1,000	
VNH28	48 54 44	115 32 1	2.00	.20	.05	.15	150	N	N	70	500	
VNH29	48 55 8	115 32 2	1.00	.05	.15	.20	1,000	N	N	150	700	
VNH30	48 55 22	115 30 39	3.00	2.00	.600	.20	700	N	N	100	500	
VNH31	48 56 56	115 36 40	3.00	.70	.50	.30	1,000	N	N	50	1,000	
VNH32	48 56 31	115 36 8	3.00	.70	.20	.30	1,500	N	N	100	700	
VNH33	48 53 36	115 36 21	3.00	.70	.30	.30	700	N	N	100	1,000	
VNH34	48 53 39	115 36 36	3.00	.70	.30	.20	500	N	N	100	700	
VNH35	48 53 44	115 36 46	5.00	1.50	.30	.30	700	N	N	100	700	
VNH36	48 53 41	115 37 30	2.00	.30	.30	.20	300	N	N	150	700	
VNH37	48 53 43	115 37 40	3.00	.500	7.00	.20	1,500	N	N	70	2,000	
VNH38	48 53 35	115 38 2	3.00	.500	7.00	.20	700	N	N	100	1,000	
VNH39	48 53 51	115 30 32	2.00	.30	.30	.30	500	N	N	100	1,000	
VNH40	48 53 25	115 35 52	5.00	1.50	.15	.30	500	N	N	100	1,000	
VNH41	48 53 19	115 35 20	7.00	2.00	.10	.30	700	N	N	150	1,000	
VNH42	48 53 12	115 35 9	5.00	1.50	<.05	.50	500	N	N	100	1,000	
VNH43	48 52 14	115 34 55	5.00	1.00	<.05	.50	500	N	N	150	1,000	
VNH44	48 53 43	115 38 29	2.00	3.00	1.00	.20	150	N	N	150	1,000	
VNH45	48 51 22	115 37 12	.50	.10	.05	.15	200	N	N	50	300	
VNH46	48 53 1	115 36 2	2.00	.70	.20	.20	300	N	N	100	700	
VNH47	48 53 23	115 35 53	2.00	.20	.70	.20	1,000	N	N	100	700	
VNH48	48 53 26	115 35 48	2.00	.20	2.00	.07	3,000	N	N	70	300	
VNH49	48 53 26	115 35 48	3.00	2.00	5.00	.15	1,500	N	N	70	500	
VNH50	48 50 28	115 36 5	5.00	2.00	.20	.50	300	N	N	200	1,000	

Table 2 - Chemical Analyses of Rocks Mount Henry Roadless Areas Montana

Table 2 - Chemical Analyses of Rocks, Mount Henry Roadless Area, Montana

Sample	Sc-ppm s	Sr-ppm s	V-ppm s	Y-ppm s	Zn-ppm s	Cr-ppm s	Th-ppm s	U-ppm s	Hg-ppm inst
VMH1	15	N	70	30	200	200	150	200	N
VMH10	15	150	100	50	100	100	100	100	N
VMH11	15	N	100	20	100	100	100	100	N
VMH12	N	<100	15	15	100	100	100	100	N
VMH13	10	100	100	70	300	300	300	300	N
VMH14	15	150	100	20	100	100	100	100	N
VMH15	5	100	30	500	500	500	500	500	N
VMH16	20	100	150	50	100	100	100	100	N
VMH17	20	100	150	30	100	100	100	100	N
VMH18	20	100	150	50	100	100	100	100	N
VMH19	10	150	100	30	200	200	200	200	N
VMH20	7	100	50	30	200	200	200	200	N
VMH21	<5	N	<10	10	100	100	100	100	N
VMH22	7	200	30	20	200	200	200	200	N
VMH23	15	<100	100	30	200	200	200	200	N
VMH24	10	200	70	30	200	200	200	200	N
VMH25	15	150	150	30	200	200	200	200	N
VMH26	15	100	150	30	200	200	200	200	N
VMH27	10	200	70	50	200	200	200	200	N
VMH28	7	N	20	20	200	200	200	200	N
VMH29	5	200	30	30	200	200	200	200	N
VMH3	10	<100	50	30	200	200	200	200	N
VMH30	10	150	100	30	200	200	200	200	N
VMH31	10	100	100	20	200	200	200	200	N
VMH32	15	150	100	30	200	200	200	200	N
VMH33	15	100	100	15	200	200	200	200	N
VMH34	10	150	70	50	200	200	200	200	N
VMH35	10	200	50	30	200	200	200	200	N
VMH36	10	150	100	30	200	200	200	200	N
VMH37	10	N	70	30	200	200	200	200	N
VMH38	10	150	50	50	200	200	200	200	N
VMH39	7	150	70	30	200	200	200	200	N
VMH4	10	150	150	150	200	200	200	200	N
VMH40	15	150	150	150	200	200	200	200	N
VMH41	20	<100	150	30	200	200	200	200	N
VMH42	20	100	150	30	200	200	200	200	N
VMH43	15	<100	150	20	200	200	200	200	N
VMH44	10	<100	70	30	200	200	200	200	N
VMH45	5	<100	20	20	200	200	200	200	N
VMH46	7	<100	50	30	200	200	200	200	N
VMH47	7	<100	70	20	200	200	200	200	N
VMH48	5	<100	70	20	200	200	200	200	N
VMH49	5	100	50	30	200	200	200	200	N
VMH5	15	100	150	70	200	200	200	200	N

Table 2 - Chemical Analyses of Rocks, Mount Henry Roadless Areas, Montana--continued

Sample	Latitude	Longitude	Fe-pct.	Mg-pct.	Ca-pct.	Ti-pct.	Mn-pct.	Ag-pptm	As-pptm	B-pptm	Ba-pptm
VMH50	48 53 35	115 35 40	3.00	1.50	.10	.30	150	1,000	1,000	500	1,000
VMH51	48 55 56	115 32 7	3.00	.50	1.00	.30	1,000	3,000	3,000	500	500
VMH52	48 55 56	115 32 7	5.00	.20	.15	.30	1,000	1,000	1,000	700	700
VMH53	48 55 18	115 36 19	5.00	.00	.20	.30	700	700	100	700	700
VMH54	48 55 12	115 36 0	5.00	.15	.15	.30	500	500	200	700	700
VMH55	48 55 11	115 35 38	5.00	1.00	1.00	.20	700	100	100	500	500
VMH56	48 54 57	115 34 1	5.00	1.00	.15	.50	700	100	150	700	700
VMH57	48 52 41	115 32 50	3.00	1.00	.15	.30	700	100	100	700	700
VMH58	48 52 34	115 33 26	5.00	1.00	.05	.30	500	500	150	700	700
VMH59	48 51 5	115 36 9	3.00	1.00	.20	.20	700	100	100	500	500
VMH60	48 50 50	115 36 20	1.00	.30	.07	.20	700	100	100	700	700
VMH61	48 49 43	115 29 45	3.00	1.00	.07	.50	700	100	100	1,000	1,000
VMH62	48 48 50	115 29 22	5.00	1.50	.30	.30	1,500	1,500	100	700	700
VMH63	48 51 14	115 33 52	5.00	1.50	.10	.50	500	500	100	1,500	1,500
VMH64	48 51 12	115 34 55	5.00	1.50	.05	.50	700	100	100	1,000	1,000
VMH65	48 50 57	115 34 42	3.00	1.00	.20	.50	700	100	100	700	700
VMH66	48 50 46	115 33 59	3.00	1.00	.15	.30	300	200	200	700	700
VMH67	48 50 36	115 35 37	5.00	1.50	.15	.50	1,000	200	200	700	700
VMH68	48 50 25	115 35 46	5.00	1.00	.10	.30	1,000	150	150	700	700
VMH69	48 53 50	115 33 41	5.00	2.00	.10	.30	700	100	100	1,000	1,000
VMH70	48 50 27	115 35 42	3.00	1.50	.15	.50	700	100	150	1,000	1,000
VMH71	48 54 30	115 34 2	5.00	1.00	.07	.50	700	100	150	1,000	1,000
VMH72	48 55 34	115 33 15	7.00	2.00	.07	.50	500	500	150	700	700
VMH73	48 52 37	115 34 25	5.00	1.00	.07	.50	500	100	100	1,000	1,000
VMH74	48 52 45	115 31 14	2.00	.70	.05	.30	150	100	100	700	700
VMH75	48 52 48	115 30 34	2.00	.70	.10	.20	300	100	150	700	700
VMH76	48 53 5	115 30 33	2.00	.50	.15	.20	700	100	100	500	500
VMH77	48 49 51	115 29 32	5.00	1.00	.20	.50	700	100	100	1,000	1,000
VMH78	48 49 47	115 30 22	7.00	2.00	.30	.50	1,500	100	100	1,000	1,000
VMH79	48 50 30	115 29 35	1.50	.30	.15	.20	200	100	100	500	500
VMH80	48 50 15	115 34 51	3.00	1.00	.15	.30	500	100	150	1,000	1,000
VMH81	48 51 5	115 29 12	.50	.10	<.05	.10	300	200	30	300	300
			5.00	.07	.10	.20	2,000	70	70	500	500
VMH82	48 51 11	115 26 35	3.00	5.00	.30	.20	200	N	150	1,000	1,000
VMH83	48 50 21	115 27 0	3.00	5.00	1.00	.50	200	N	150	1,000	1,000
VMH84	48 49 35	115 27 8	3.00	3.00	.15	.30	300	N	150	700	700
VMH85	48 50 37	115 31 24	3.00	1.50	.20	.30	1,000	N	100	1,000	1,000
VMH86	48 51 44	115 32 23	5.00	1.00	.10	.50	200	N	150	1,000	1,000
VMH87	48 57 55	115 28 39	3.00	1.50	.70	.30	700	N	200	700	700
VMH88	48 53 37	115 27 35	3.00	1.00	.10	.50	300	N	20	300	300
VMH89	48 52 22	115 27 55	5.00	5.00	2.00	.20	700	N	100	3,000	3,000
VMH90	48 49 40	115 25 9	5.00	3.00	.50	.20	150	N	100	1,000	1,000
VMH91	48 49 36	115 27 50	2.00	.50	.05	.20	200	N	20	300	300
VMH92	48 49 40	115 27 50	2.00	.50	.05	.20	200	N	70	300	300
VMH93	48 49 36	115 27 50	2.00	.50	.05	.20	200	N	70	300	300

Table 2.—Chemical Analyses of Rocks, Mount Henry Roadless Area, Montana—continued

Sample	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	X-ppm s	Y-ppm s	Zr-ppm s	Th-ppm s	Au-ppm s	Hg-ppm inst
VMH50	10	<100	150	150	100	100	100	100	100	100	N
VMH51	15	200	150	150	100	100	100	100	100	100	N
VMH52	7	100	150	150	100	100	100	100	100	100	N
VMH53	15	150	150	150	100	100	100	100	100	100	N
VMH54	15	100	150	150	100	100	100	100	100	100	N
VMH55	10	300	100	100	100	100	100	100	100	100	N
VMH56	15	150	150	150	100	100	100	100	100	100	N
VMH57	10	100	100	100	100	100	100	100	100	100	N
VMH58	15	100	100	100	100	100	100	100	100	100	N
VMH59	10	150	70	70	30	30	30	30	30	30	N
VMH60	5	100	100	100	100	100	100	100	100	100	N
VMH61	10	100	100	100	100	100	100	100	100	100	N
VMH62	15	150	150	150	100	100	100	100	100	100	N
VMH63	20	100	100	100	100	100	100	100	100	100	N
VMH64	20	<100	150	150	100	100	100	100	100	100	N
VMH65	10	100	100	100	100	100	100	100	100	100	N
VMH66	15	100	100	100	100	100	100	100	100	100	N
VMH67	15	100	100	100	100	100	100	100	100	100	N
VMH68	10	100	100	100	100	100	100	100	100	100	N
VMH69	15	<100	150	150	100	100	100	100	100	100	N
VMH70	15	100	100	100	100	100	100	100	100	100	N
VMH71	15	150	150	150	100	100	100	100	100	100	N
VMH72	7	150	50	50	30	30	30	30	30	30	N
VMH73	15	150	100	100	100	100	100	100	100	100	N
VMH74	10	100	100	100	100	100	100	100	100	100	N
VMH75	7	150	150	150	100	100	100	100	100	100	N
VMH76	5	150	150	150	100	100	100	100	100	100	N
VMH77	15	100	100	100	100	100	100	100	100	100	N
VMH78	20	100	150	150	100	100	100	100	100	100	N
VMH79	5	150	150	150	100	100	100	100	100	100	N
VMH80	15	100	100	100	100	100	100	100	100	100	N
VMH81	7	150	150	150	100	100	100	100	100	100	N
VMH82	10	N	70	70	100	100	100	100	100	100	N
VMH83	15	<100	100	100	100	100	100	100	100	100	N
VMH84	10	<100	100	100	100	100	100	100	100	100	N
VMH85	15	100	100	100	100	100	100	100	100	100	N
VMH86	20	100	100	100	100	100	100	100	100	100	N
VMH87	10	100	100	100	100	100	100	100	100	100	N
VMH88	5	100	100	100	100	100	100	100	100	100	N
VMH89	15	100	100	100	100	100	100	100	100	100	N
VMH90	10	<100	100	100	100	100	100	100	100	100	N
VMH91	7	<100	100	100	100	100	100	100	100	100	N

Table 2 - Chemical Analyses of Rocks, Mount Henry Roadless Areas, Montana--continued

Sample	Latitude	Longitude	Fe-pct.	Mg-pct.	Ca-pct.	Ti-pct.	Mn-ppm	Ag-ppm	As-ppm	Au-ppm	B-ppm	Bar-ppt.
VMMH95	48 52 10	115 31 6	7.00	1.00	.50	.50	500	N	N	N	200	1,000
VMMH96	48 51 48	115 31 10	5.00	1.50	.20	.50	700	N	N	N	150	700
VMMH97	48 52 0	115 34 30	3.00	.70	.10	.50	500	N	N	N	100	700
VMMH98	48 52 0	115 34 30	3.00	1.00	.20	.30	500	N	N	N	150	700
VMMH99	48 51 57	115 34 46	5.00	1.00	.30	.50	500	N	N	N	150	700

Table 2 - Chemical Analyses of Rocks, Mount Henry Roadless Area, Montana--continued

Sample	Ba-ppm	Bi-ppm	Cd-ppm	Co-ppm	Cr-ppm	Cu-ppm	La-ppm	Mo-ppm	Nb-ppm	Ni-ppm	Pb-ppm	Sb-ppm
VMH95	5.0	N	N	15	100	N	100	N	N	20	50	N
VMH96	3.0	N	N	15	50	N	50	N	N	20	50	N
VMH97	3.0	N	N	7	50	10	20	N	N	15	15	N
VMH98	3.0	N	N	<5	70	7	20	S	N	N	20	N
VMH99	5.0	N	N	7	70	50	70	N	N	7	70	N

Table 2 - Chemical Analyses of Rocks, Mount Henry Roadless Area, Montana--continued.

Sample	Sc-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Au-ppm s	Hg-ppm inst
VNH95	20	N	150	150	N	70	N	200	N	--
VNH96	15	N	100	100	N	50	N	200	N	--
VNH97	10	N	100	100	N	20	N	200	N	--
VNH98	15	N	<100	100	N	20	N	200	N	--
VNH99	15	N	100	150	N	50	N	200	N	--

Table 3 - Chemical Analyses of 0.177 mm (minus -80 mesh) Stream Sediments, Mount Henry Roadless Area, Montana

Sample	Latitude	Longitude	Per-cent.	Mg-per-cent.	Ca-per-cent.	Ti-per-cent.	Mn-per-cent.	Ag-per-cent.	As-per-cent.	Au-per-cent.	Ba-per-cent.	Ba-per-milligram
MH001SS	48 56 14	115 29 24	3.0	1.0	.50	.30	300	N	N	N	70	500
MH002SS	48 55 42	115 28 52	2.0	1.0	.70	.30	500	N	N	N	70	300
MH003SS	48 54 45	115 28 50	2.0	.7	.30	.30	300	N	N	N	70	200
MH004SS	48 54 32	115 28 49	5.0	1.0	1.00	.50	1,000	<.5	N	100	700	
MH005SS	48 53 50	115 28 46	2.0	.5	.30	.20	300	N	N	N	50	200
MH006SS	48 53 33	115 28 49	2.0	.3	.30	.20	500	N	N	N	50	200
MH007SS	48 52 57	115 28 59	3.0	.3	.20	.30	700	N	N	N	50	300
MH008SS	48 52 44	115 27 41	3.0	1.0	.70	.30	500	<.5	N	70	700	
MH009SS	48 51 18	115 26 5	5.0	1.0	1.00	.30	1,000	<.5	N	30	1,000	
MH010SS	48 50 58	115 25 57	2.0	1.0	.30	.20	300	N	N	N	50	300
MH011SS	48 50 20	115 25 48	3.0	1.0	.50	.20	1,000	N	N	N	50	300
MH012SS	48 49 28	115 25 17	3.0	1.0	.50	.30	1,000	N	N	N	50	700
MH013SS	48 48 51	115 25 43	3.0	.7	.15	.20	500	N	N	N	30	500
MH014SS	48 49 17	115 28 25	3.0	.5	.20	.30	300	N	N	N	30	500
MH015SS	48 49 14	115 28 21	2.0	.5	.20	.30	700	<.5	N	N	30	500
MH016SS	48 49 8	115 28 30	3.0	.7	.20	.30	1,000	N	N	N	30	700
MH017SS	48 48 43	115 28 10	2.0	.5	.15	.30	300	N	N	N	50	300
MH019SS	48 43 48	115 30 58	3.0	.7	.50	.50	1,000	N	N	N	30	300
MH020SS	48 49 18	115 31 0	2.0	.5	.30	.30	500	N	N	N	70	300
MH021SS	48 49 36	115 31 20	3.0	.7	.30	.50	700	N	N	N	100	300
MH022SS	48 50 3	115 31 52	3.0	.7	.50	.50	700	N	N	N	70	500
MH023SS	48 49 32	115 32 25	1.0	.2	.50	.10	500	<.5	N	10	100	
MH024SS	48 47 8	115 32 45	2.0	.2	.15	.20	300	N	N	N	70	200
MH025SS	48 50 40	115 34 35	3.0	.5	.70	.30	500	N	N	N	30	500
MH026SS	48 51 20	115 34 21	5.0	.7	.50	.50	700	N	N	N	50	300
MH027SS	48 50 30	115 35 35	5.0	.7	.70	.50	1,500	N	N	N	70	700
MH028SS	48 50 18	115 36 20	7.0	.7	.50	.70	1,000	N	N	N	70	500
MH029SS	48 50 39	115 39 6	3.0	.5	.50	.20	500	N	N	N	20	200
MH030SS	48 52 53	115 37 55	5.0	.5	.30	.50	700	N	N	N	70	300
MH031SS	48 54 40	115 37 10	3.0	.5	.50	.50	1,000	N	N	N	30	300
MH032SS	48 54 20	115 36 41	5.0	.7	.30	.50	1,000	N	N	N	50	300
MH033SS	48 55 48	115 38 44	3.0	.5	.50	.30	700	N	N	N	50	500
MH034SS	48 56 38	115 37 27	2.0	.3	.20	.50	300	N	N	N	100	200
MH035SS	48 56 22	115 35 34	5.0	.7	.20	.50	700	N	N	N	100	300
MH036SS	48 56 48	115 32 27	5.0	.7	.20	.50	500	N	N	N	100	500
MH037SS	48 53 18	115 33 2	7.0	1.0	1.00	1,500	N	N	N	70	700	
MH038SS	48 53 13	115 32 37	7.0	.5	.50	.30	1,000	N	N	N	100	500
MH039SS	48 53 33	115 32 31	3.0	.3	.30	.30	500	N	N	N	100	300
MH040SS	48 53 43	115 32 23	3.0	.5	.70	.30	1,000	N	N	N	50	500
MH041SS	48 54 40	115 30 48	5.0	.7	.30	.30	700	N	N	N	70	700
MH042SS	48 52 3	115 36 0	3.0	.7	.30	.50	1,000	N	N	N	50	300
MH043SS	48 51 48	115 35 10	1.5	.3	.50	.30	1,500	N	N	N	20	300
MH044SS	48 51 37	115 34 20	3.0	.5	.15	.50	300	N	N	N	20	150
MH045SS	48 51 43	115 33 52	3.0	.5	.20	.50	500	N	N	N	70	200
MH046SS	48 51 24	115 33 18	3.0	.5	.30	.30	700	N	N	N	50	300

Table 3 - Chemical Analyses of 0.177 mm (minus +80 mesh) Stream Sediments, Mount Henry Roadless Areas, Montana

Sample	Re-ppm s	Ba-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s
MH001SS	1.5	N	N	1.0	20	20	30	<20	20	20	10	20
MH002SS	1.5	N	N	1.0	20	20	20	<20	15	20	10	10
MH003SS	1.0	N	N	1.0	20	20	20	N	20	20	10	10
MH004SS	1.5	N	N	1.5	50	30	70	20	30	30	30	30
MH005SS	1.5	N	N	1.0	20	30	50	N	20	30	15	15
MH006SS	2.0	N	N	7	15	30	70	N	20	10	10	N
MH007SS	2.0	N	N	10	20	50	50	N	30	10	10	N
MH008SS	2.0	N	N	10	30	50	100	N	30	30	30	N
MH009SS	2.0	N	N	10	30	70	100	N	30	30	20	N
MH010SS	1.5	N	N	15	30	20	20	N	20	15	15	N
MH011SS	1.5	N	N	10	20	50	70	N	20	15	15	N
MH012SS	2.0	N	N	15	20	50	20	N	20	20	20	N
MH013SS	1.0	N	N	15	20	20	20	N	10	20	20	N
MH014SS	1.5	N	N	7	20	30	70	N	10	20	20	N
MH015SS	1.5	N	N	7	20	30	70	N	10	15	15	N
MH016SS	2.0	N	N	10	20	30	50	N	20	15	20	N
MH017SS	2.0	N	N	7	15	15	30	N	20	10	10	N
MH018SS	2.0	N	N	15	20	30	70	N	20	30	30	N
MH020SS	1.5	N	N	10	20	20	30	N	20	20	20	N
MH021SS	2.0	N	N	15	20	30	50	N	20	20	20	N
MH022SS	2.0	N	N	10	30	50	150	N	50	50	50	N
MH023SS	10.0	N	N	30	10	30	70	N	50	50	50	N
MH024SS	2.0	N	N	20	15	20	50	N	20	20	20	N
MH025SS	1.0	N	N	100	20	50	30	N	50	50	50	N
MH026SS	3.0	N	N	20	30	70	100	N	50	50	50	N
MH027SS	2.0	N	N	10	70	70	15	N	20	20	20	N
MH028SS	2.0	N	N	10	70	70	15	N	20	20	20	N
MH029SS	1.5	N	N	10	20	50	50	N	30	10	10	N
MH030SS	2.0	N	N	10	20	50	70	N	30	20	20	N
MH031SS	2.0	N	N	10	20	50	100	N	20	20	20	N
MH032SS	2.0	N	N	15	20	50	70	N	20	20	20	N
MH033SS	2.0	N	N	15	20	50	70	N	20	20	20	N
MH034SS	1.0	N	N	10	15	20	20	N	10	10	10	N
MH035SS	2.0	N	N	10	15	20	20	N	10	10	10	N
MH036SS	1.5	N	N	10	20	50	50	N	20	20	20	N
MH037SS	3.0	N	N	15	50	70	100	N	20	20	20	N
MH038SS	2.0	N	N	10	50	70	100	N	20	20	20	N
MH039SS	1.5	N	N	7	20	20	30	N	15	10	10	N
MH040SS	2.0	N	N	7	20	70	70	N	30	30	30	N
MH041SS	2.0	N	N	10	50	70	70	N	20	20	20	N
MH042SS	2.0	N	N	5	10	30	30	N	15	15	15	N
MH043SS	1.5	N	N	20	20	50	50	N	20	20	20	N
MH044SS	1.5	N	N	10	20	50	50	N	20	20	20	N
MH045SS	1.5	N	N	10	20	50	50	N	20	20	20	N
MH046SS	2.0	N	N	10	20	50	50	N	20	20	20	N

Table 3 • Chemical Analyses of 0.177 mm (minus -80 mesh)

Sample	Sc-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Th-ppm s	Hg-ppm inst	Zn-ppm aa
MH001SS	7	100	70	N	30	200	N	.08	60
MH002SS	7	<100	50	N	20	200	N	.06	60
MH003SS	7	N	50	N	20	200	N	.08	60
MH004SS	10	150	100	N	70	300	N	.10	65
MH005SS	7	<100	50	N	20	200	N	.14	50
MH006SS		100	50	N	50	200	N	.40	50
MH007SS	7	<100	50	N	30	200	N	.14	75
MH008SS	10	<100	70	N	100	200	N	.10	70
MH009SS	10	300	100	N	100	200	N	.10	50
MH010SS	5	N	30	N	30	100	N	.12	70
MH011SS	7	<100	50	N	30	150	N	.12	70
MH012SS	10	150	70	N	30	200	N	.24	60
MH013SS	5	<100	50	N	15	200	N	.08	50
MH014SS	7	100	70	N	30	300	N	.08	35
MH015SS	7	100	50	N	50	300	N	.08	60
MH016SS	10	100	70	N	30	200	N	.06	60
MH017SS	7	<100	50	N	20	300	N	.04	30
MH019SS	10	150	70	N	70	200	N	.08	50
MH020SS	7	100	50	N	30	200	N	.08	60
MH021SS	7	100	50	N	30	150	N	.10	--
MH022SS		100	50	N	50	200	N	.08	55
MH023SS		100	30	N	100	50	N	.24	130
MH024SS		<100	50	N	20	150	N	.14	110
MH025SS		200	70	N	15	200	N	.06	95
MH026SS		150	70	N	70	150	N	.10	100
MH027SS	20	200	150	N	100	300	N	.06	45
MH028SS	15	150	100	N	100	200	N	.06	60
MH029SS	5	100	50	N	20	100	N	.08	130
MH030SS	10	100	70	N	70	300	N	.06	55
MH031SS	10	150	70	N	100	100	N	.16	70
MH032SS	10	100	70	N	50	150	N	.06	90
MH033SS	7	100	70	N	50	200	N	.06	45
MH034SS	5	<100	30	N	10	200	N	.04	50
MH035SS	10	<100	70	N	70	200	N	.04	65
MH036SS	10	<100	100	N	50	200	N	.04	55
MH037SS		300	150	N	70	300	N	.08	65
MH038SS	10	100	100	N	70	300	N	.08	55
MH039SS	7	<100	70	N	20	200	N	.12	40
MH040SS	10	150	70	N	50	200	N	.12	50
MH041SS		<100	100	N	100	200	N	.14	60
MH042SS	10	100	50	N	70	70	N	.12	75
MH043SS	5	100	50	N	10	150	N	.14	35
MH044SS	7	<100	30	N	50	100	N	.08	85
MH045SS	7	<100	50	N	50	200	N	.04	60
MH046SS	10	<100	50	N	50	200	N	.04	70

Table 3 - Chemical Analyses of 0.177 mm (minus -80 mesh) Stream Sediments, Mount Henry Roadless Area, Montana--continued

Sample	Latitude	Longitude	Fe-pct.	Mg-pct.	Ca-pct.	Mn-pptm	As-pptm	Au-pptm	B-pptm	Ba-pptm
			s	s	s	s	s	s	s	s
MH047SS	48 51 21	115 33 21	.5	.5	.20	.50	1,000	N	70	500
MH048SS	48 51 36	115 32 30	.5	.5	1.00	.50	1,000	N	50	700
MH049SS	48 51 44	115 32 28	.5	.5	.50	.50	700	N	70	500
MH050SS	48 51 50	115 33 33	.5	.5	.50	.50	700	N	70	500
MH051SS	48 52 2	115 35 54	.5	.5	.30	.50	1,000	N	70	300
MH052SS	48 51 52	115 36 55	.5	.5	.20	.30	500	N	100	500
MH053SS	48 55 34	115 35 10	.5	.5	.20	.30	500	N	70	300
MH054SS	48 55 9	115 35 37	.5	.5	.20	.30	300	N	50	300
MH055SS	48 52 45	115 34 12	.5	.5	1.00	.70	.50	N	70	1,000
MH056SS	48 54 6	115 31 53	.5	.5	.50	.50	500	N	70	300
MH057SS	48 54 41	115 35 9	.5	.7	.30	.30	500	N	50	500
MH060SS	48 54 20	115 31 0	.5	.5	.10	.30	500	N	50	300
MH061SS	48 54 35	115 30 46	.5	.7	.50	.30	200	N	30	1,000
MH062SS	48 54 25	115 31 8	.5	.7	.15	.30	300	N	100	700
MH064SS	48 52 21	115 29 38	.5	.5	.50	.30	700	N	50	700
MH065SS	48 52 18	115 29 35	2.0	.5	.30	.20	700	N	20	500
MH066SS	48 52 21	115 28 50	5.0	2.0	.15	.30	1,000	N	100	1,500
MH067SS	48 52 18	115 28 53	3.0	.7	.20	.15	300	N	30	300
MH068SS	48 50 4	115 29 40	2.0	.2	.50	.30	300	N	50	500
MH069SS	48 50 15	115 29 8	1.0	.1	.70	.10	1,000	N	30	300

Table 3 - Chemical Analyses of 0.177 mm (minus -80 mesh) Stream Sediments, Mount Henry Roadless Area, Montana--continued

Sample	Ba-ppm	Bi-ppm	Cd-ppm	Co-ppm	Cr-ppm	Cu-ppm	La-ppm	Mo-ppm	Ni-ppm	Pb-ppm	Sb-ppm
MH047SS	2.0										
MH048SS	3.0										
MH049SS	2.0										
MH050SS	2.0										
MH051SS	1.5										
MH052SS	2.0										
MH053SS	2.0										
MH054SS	1.5										
MH055SS	2.0										
MH056SS	2.0										
MH057SS	2.0										
MH060SS	1.5										
MH061SS	5.0										
MH062SS	2.0										
MH064SS	1.5										
MH065SS	1.5										
MH066SS	2.0										
MH067SS	1.0										
MH068SS	2.0										
MH069SS	2.0										

Table 3 - Chemical Analyses of 0.177 mm (minus -80 mesh) Stream Sediments, Mount Henry Roadless Area, Montana--continued

Sample	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Hg-ppm inst	Zn-ppm a.a.
MH047SS	10	N	100	70	N	200	N	N	N	.06	55
MH048SS	10	N	300	100	150	300	N	N	N	.16	45
MH049SS	15	N	150	100	50	300	N	N	N	.04	55
MH050SS	15	N	100	70	150	200	N	N	N	.08	95
MH051SS	10	N	<100	50	50	150	N	N	N	.16	85
MH052SS	10	N	100	50	50	200	N	N	N	.04	45
MH053SS	10	N	<100	70	30	200	N	N	N	.04	70
MH054SS	7	N	<100	50	50	100	N	N	N	.06	65
MH055SS	30	N	300	100	70	300	N	N	N	.02	90
MH056SS	10	N	100	70	50	150	N	N	N	.16	50
MH057SS	15	N	100	70	150	200	N	N	N	.08	75
MH060SS	7	N	50	20	20	200	N	N	N	.10	40
MH061SS	15	N	200	100	100	200	N	N	N	.24	110
MH062SS	10	N	<100	70	20	300	N	N	N	.04	55
MH064SS	10	N	100	100	50	300	N	N	N	.10	50
MH065SS	5	N	100	50	20	200	N	N	N	.10	40
MH066SS	15	N	200	100	70	300	N	N	N	.08	60
MH067SS	5	N	30	20	20	200	N	N	N	.10	55
MH068SS	7	N	100	70	30	200	N	N	N	.10	45
MH069SS	7	N	150	20	30	70	N	N	N	.24	60

Table 4 - Chemical Analyses of Magnetic and Non-magnetic Fractions of Heavy Mineral Concentrates, Mount Henry Roadless Area, Montana

Sample	Latitude	Longitude	Fe-pct.	Mg-pct.	Ca-pct.	Ti-pct.	Mn-pptm	As-pptm	Au-pptm	B-pptm	Ba-pptm
	s	s	s	s	s	s	s	s	s	s	s
MH41C2	48 54 40	115 30 48	30.0	1.0	.2	1.0	2,000	N	N	200	1,000
MH41C3	48 54 40	115 30 48	30.0	.7	.2	1.0	1,000	N	N	150	500
MH49C2	48 51 44	115 32 28	30.0	1.0	.3	>2.0	5,000	N	N	150	1,000
MH49C3	48 51 44	115 32 28	2.0	.7	.3	1.0	700	N	N	150	700
MH58C2	48 52 38	115 28 59	50.0	1.5	.7	2.0	5,000	N	N	200	1,000
MH58C3	48 52 38	115 28 59	1.5	1.0	.7	>2.0	10,000	N	N	150	700
MH59C2	48 52 36	115 29 1	50.0	1.0	.3	1.0	500	N	N	500	1,500
MH59C3	48 52 36	115 29 1	2.0	.5	.3	1.5	700	N	N	100	300
MH63C2	48 55 24	115 32 22	30.0	1.5	1.0	>2.0	10,000	N	N	300	150
MH63C3	48 55 24	115 32 22	.5	.3	.3	>2.0	100	N	N	2,000	200
MH70C2	48 48 25	115 28 25	50.0	1.0	.2	.7	7,000	N	N	50	700
MH70C3	48 48 25	115 28 25	1.0	.5	.2	.5	200	N	N	100	300
MH71C2	48 53 51	115 38 44	30.0	1.5	.5	>2.0	10,000	N	N	150	100
MH71C3	48 53 51	115 38 44	1.5	.5	.5	>2.0	2,000	N	N	200	300
MH72C2	48 51 37	115 38 30	50.0	.5	.2	>2.0	>10,000	N	N	150	50
MH72C3	48 51 32	115 38 30	1.5	.5	1.5	>2.0	1,000	N	N	200	500
MH73C2	48 50 34	115 35 57	50.0	.7	.5	>2.0	10,000	N	N	30	200
MH73C3	48 50 34	115 35 37	3.0	.5	1.5	>2.0	2,000	N	N	200	500
MH75C2	48 51 56	115 35 0	50.0	.7	.3	>2.0	>10,000	N	N	200	150
MH75C3	48 51 56	115 35 0	2.0	.7	1.5	>2.0	700	N	N	200	500
MH76C2	48 55 40	115 32 1	50.0	1.0	.5	>2.0	2,000	N	N	200	700
MH76C3	48 55 40	115 32 1	2.0	.7	.7	2.0	300	N	N	500	700

1. The combined C2 and C3 fractions were analyzed for gold using the atomic absorption technique of Thompson and others (1968). Sample MH-73C contained 2.5 ppm gold. No other concentrate contained detectable Au using this method.

Table 4 - Chemical Analyses of Magnetic and Non-magnetic Fractions of Heavy Mineral Concentrates, Mount Henry Roadless Area, Montana

Sample	Ba-ppm	Bi-ppm	Cd-ppm	Co-ppm	Cr-ppm	Cu-ppm	La-ppm	Mo-ppm	Nb-ppm	Ni-ppm	Pb-ppm
MH41C2	5	N	100	200	200	1,000	N	N	<50	200	200
MH41C3	2	N	15	100	15	1,000	N	N	70	70	20
MH49C2	3	N	70	200	150	700	N	N	70	150	50
MH49C3	3	N	20	70	15	150	N	N	20	20	20
MH58C2	3	N	150	200	300	2,000	N	N	50	200	150
MH58C3	<2	N	15	100	10	500	N	N	50	15	20
MH59C2	2	N	100	200	200	70	N	N	50	200	20
MH59C3	<2	N	15	50	<10	100	N	N	<50	15	<20
MH63C2	N	N	100	150	100	500	N	N	100	100	100
MH63C3	<2	N	20	150	150	150	N	N	100	15	<20
MH70C2	3	N	70	200	50	100	N	N	200	30	30
MH70C3	2	N	<10	50	<10	200	N	N	10	20	20
MH71C2	N	N	50	150	50	300	N	N	150	70	20
MH71C3	2	N	15	50	N	150	N	N	70	10	20
MH72C2	N	N	30	300	100	70	N	N	150	30	20
MH72C3	<20	N	20	100	N	200	N	N	150	15	30
MH73C2	N	N	100	200	150	300	N	N	150	150	50
MH73C3	2	N	20	50	<10	300	N	N	100	20	30
MH75C2	N	N	70	100	150	200	N	N	150	70	30
MH75C3	<2	N	20	100	<10	150	N	N	150	20	30
MH76C2	<2	N	150	200	300	1,000	N	N	50	200	150
MH76C3	3	N	20	70	10	700	N	N	70	20	30

Table 4. Characteristic analyses of magnetites from non-magnetic areas, Montana

Sample	Sb-ppm	Sc-ppm	Sr-ppm	V-ppm	W-ppm	X-ppm	Y-ppm	Zn-ppm	Zr-ppm	Th-ppm	S
MH41C2	20	<200	300	300	N	700	1,500	N	500	1,000	N
MH41C3	10	200	150	200	N	150	700	N	500	1,500	N
MH49C2	20	<200	200	200	N	100	50	N	2,000	2,000	N
MH49C3	15	200	150	150	N	70	3,000	300	200	2,000	N
MH58C2	20	200	300	300	N	200	200	N	>2,000	>2,000	N
MH58C3	20	200	150	150	N	300	700	N	300	2,000	N
MH59C2	20	<200	300	300	N	100	50	N	1,500	1,500	N
MH59C3	10	200	200	100	N	150	200	N	300	300	N
MH63C2	20	<200	200	200	N	70	70	N	1,500	1,500	N
MH63C3	10	200	150	150	N	100	200	N	2,000	2,000	N
MH70C2	10	<200	300	300	N	300	100	N	500	500	N
MH70C3	10	200	200	100	N	100	150	N	500	500	N
MH71C2	20	300	300	300	N	150	150	N	300	300	N
MH71C3	10	200	200	70	N	200	200	N	1,500	1,500	N
MH72C2	<10	100	100	70	N	200	200	N	>2,000	>2,000	N
MH72C3	20	200	200	200	N	1,000	1,000	N	300	300	N
MH73C2	10	200	200	200	N	200	200	N	2,000	2,000	N
MH73C3	15	200	150	150	N	500	500	N	200	200	N
MH75C2	10	200	200	200	N	300	300	N	1,500	1,500	N
MH75C3	20	<200	200	200	N	1,500	1,000	N	500	1,000	N
MH76C2	20	<200	200	200	N	1,000	1,000	N	1,500	1,500	N
MH76C3	15	200	150	150	N	500	500	N	1,000	1,000	N

Table 5 - Chemical Analyses of Oxalic Leach of Selected Rocks (Prichard Formation), Mount Henry Roadless Area, Montana

Sample	Latitude	Longitude	Fe-pct.	Mn-pct.	Ce-pct.	Ti-pct.	Mn-ppm	Ag-ppm	As-ppm	Ba-ppm
			s	s	s	s	s	s	s	s
VHH0160X	48 56 36	115 34 55	10	5	.70	.5	2,000	N	N	50
VHH0150X	48 56 36	115 34 55	50	5	.10	.1	2,000	N	N	20
VHH0160X	48 56 45	115 36 12	15	5	1.00	.5	2,000	N	N	50
VHH0170X	48 56 36	115 36 5	15	5	.30	.3	1,500	2.0	N	50
VHH0180X	48 56 8	115 34 19	20	5	.70	.5	2,000	N	N	50
VHH0420X	48 53 12	115 35 9	20	5	.10	.2	1,500	N	N	20
VHH0430X	48 52 14	115 34 55	30	5	.15	.3	1,500	N	N	50
VHH0510X	48 51 18	115 36 19	20	5	1.00	.5	3,000	N	N	50
VHH0540X	48 51 12	115 36 0	20	5	.20	.3	2,000	N	N	50
VHH0550X	48 51 11	115 35 38	15	5	2.00	1.0	3,000	3.0	N	30
VHH0560X	48 51 57	115 34 1	20	5	.70	.2	2,000	1.0	N	30
VHH0580X	48 52 34	115 33 26	30	5	.20	.5	2,000	1.5	N	50
VHH0630X	48 51 14	115 33 52	30	2	.15	.3	700	N	N	50
VHH0640X	48 51 12	115 34 55	15	5	.30	.3	1,000	N	N	30
VHH0660X	48 50 46	115 33 59	30	5	.30	.5	1,500	3.0	N	50
VHH0670X	48 53 50	115 33 41	20	5	.20	.5	1,500	N	N	50
VHH0700X	48 54 30	115 34 2	30	3	.10	.5	1,500	N	N	50
VHH0720X	48 54 2	115 34 9	20	3	.00	.7	5,000	N	N	50
VHH0730X	48 52 37	115 34 25	20	5	.50	1.0	1,000	10.0	N	50
VHH0860X	48 51 44	115 32 23	20	5	1.50	.7	1,500	10.0	N	50
VHH0970X	48 52 0	115 34 30	20	5	.15	.3	2,000	1.0	N	50
VHH0980X	48 52 0	115 34 30	20	5	.15	.7	1,500	1.0	N	20
VHH0990X	48 51 57	115 34 46	50	5	.20	.5	3,000	2.0	N	20

Table 5 - Chemical Analyses of Oxalic Leach of Selected Rocks (Prichard Formation), Mount Henry Roadless Areas, Montana

Sample	Ba-ppm s	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cu-ppm s	Cr-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s
VMMH0140X	3											
VMMH0150X	2	<20										
VMMH0160X	2											
VMMH0170X	2											
VMMH0180X	3											
VMMH0420X	2											
VMMH0430X	2											
VMMH0530X	3											
VMMH0540X	2											
VMMH0550X	2											
VMMH0560X	3											
VMMH0580X	2											
VMMH0630X	3											
VMMH0640X	2											
VMMH0660X	3											
VMMH0690X	2											
VMMH0700X	2											
VMMH0720X	2											
VMMH0730X	2											
VMMH0860X	5											
VMMH0970X	2											
VMMH0980X	2											
VMMH0990X	3											

Table 5 - Chemical Analyses of Oxalic Leach of Selected Rocks (Prichard formation), Mount Henry Roadless Area, Montana

Sample	Sb-ppm s	Sc-ppm s	Sn-ppm s	Sr-ppm s	V-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
VMH0140X	N	30	N	200	500	200	N	70	<200
VMH0150X	N	10	N	<200	70	500	N	20	N
VMH0160X	N	30	N	<200	200	100	N	150	200
VMH0170X	N	30	N	200	200	70	N	70	<200
VMH0180X	N	30	N	200	200	200	N	70	<200
VMH0420X	N	15	N	N	150	150	N	30	<200
VMH0430X	N	20	N	<200	150	150	N	50	<200
VMH0530X	N	20	N	200	200	200	N	70	200
VMH0540X	N	20	N	200	200	50	N	50	200
VMH0550X	N	30	N	200	300	200	N	70	<200
VMH0560X	N	20	N	<200	200	100	N	70	<200
VMH0580X	N	20	N	200	200	500	N	50	200
VMH0630X	N	20	N	<200	150	200	N	50	<200
VMH0640X	N	30	N	<200	200	150	N	200	<200
VNH0660X	N	30	N	200	200	100	N	100	200
VMH0690X	N	30	N	<200	200	150	N	70	200
VNH0700X	N	20	N	200	200	150	N	50	200
VMH0720X	N	20	N	200	200	700	N	100	300
VMH0750X	N	30	N	200	200	100	N	100	200
VNH0860X	N	30	N	200	200	300	N	70	200
VMH0970X	N	15	N	<200	200	300	N	50	200
VMH0980X	N	15	N	<200	150	200	N	50	200
VMH0990X	N	20	N	<200	200	200	N	30	200

Table 6 • Chemical Analyses of Oxalic Leach of 0.177mm (minus -80 mesh) Stream Sediments, Mount Henry Roadless Areas, Montana

Sample	Latitude	Longitude	Fm-pct.	Mg-pct.	Ca-pct.	Ti-pct.	Mn-ppm	Ag-ppm	As-ppm	Ba-ppm	Ba-ppm ^s
MH0010X	48 56 14	115 29 26	20	5.0	3.0	.3	3,000	5,000	5,000	150	150
MH0020X	48 55 42	115 28 52	20	5.0	2.0	.2	7,000	7,000	7,000	700	700
MH0030X	48 54 45	115 28 50	20	3.0	2.0	.2	3,000	3,000	3,000	50	50
MH0040X	48 54 32	115 28 47	20	3.0	3.0	.2	7,000	7,000	7,000	1,500	1,500
MH0050X	48 53 50	115 28 46	20	3.0	3.0	.2	10,000	10,000	10,000	2,000	2,000
MH0060X	48 53 33	115 28 49	20	2.0	3.0	.2	10,000	10,000	10,000	3,000	3,000
MH0070X	48 52 57	115 28 59	20	2.0	2.0	.2	7,000	7,000	7,000	2,000	2,000
MH0080X	48 52 44	115 27 41	20	5.0	3.0	.3	3,000	3,000	3,000	30	30
MH0090X	48 51 18	115 26 5	10	2.0	2.0	.2	5,000	5,000	5,000	20	20
MH0100X	48 50 58	115 25 57	15	5.0	3.0	.3	7,000	7,000	7,000	50	50
MH0110X	48 50 20	115 25 48	20	3.0	3.0	.2	>10,000	>10,000	>10,000	1,500	1,500
MH0120X	48 49 28	115 25 17	15	5.0	2.0	.3	7,000	7,000	7,000	1,000	1,000
MH0130X	48 48 51	115 25 43	20	5.0	2.0	.3	>10,000	>10,000	>10,000	3,000	3,000
MH0140X	48 49 17	115 28 25	20	2.0	3.0	.5	7,000	7,000	7,000	5,000	5,000
MH0150X	48 49 14	115 28 21	20	3.0	3.0	.5	>10,000	>10,000	>10,000	5,000	5,000
MH0160X	48 49 8	115 28 30	20	2.0	2.0	1.5	5.5	5.5	5.5	2,000	2,000
MH0170X	48 48 43	115 28 10	20	3.0	1.5	2.0	7,000	7,000	7,000	50	50
MH0190X	48 48 48	115 30 58	20	3.0	3.0	2.0	7,000	7,000	7,000	2,000	2,000
MH0200X	48 49 18	115 31 0	20	3.0	2.0	.7	3,000	3,000	3,000	1,500	1,500
MH0210X	48 49 36	115 31 20	10	2.0	1.5	.3	2,000	2,000	2,000	200	200
MH0220X	48 50 3	115 31 52	20	3.0	2.0	.5	5,000	5,000	5,000	1,500	1,500
MH0230X	48 49 32	115 32 25	20	3.0	3.0	.2	10,000	10,000	10,000	200	200
MH0240X	48 49 8	115 32 45	20	3.0	2.0	.5	3,000	3,000	3,000	150	150
MH0250X	48 50 40	115 34 35	20	1.5	2.0	.7	2,000	2,000	2,000	2,000	2,000
MH0260X	48 50 20	115 34 21	20	2.0	2.0	.2	5,000	5,000	5,000	50	50
MH0270X	48 50 38	115 35 35	20	3.0	3.0	.5	7,000	7,000	7,000	30	30
MH0280X	48 50 18	115 36 20	30	3.0	3.0	.5	5,000	5,000	5,000	2,000	2,000
MH0290X	48 50 39	115 39 6	30	3.0	3.0	.5	7,000	7,000	7,000	30	30
MH0300X	48 52 53	115 37 55	20	3.0	3.0	.5	10,000	10,000	10,000	3,000	3,000
MH0310X	48 54 40	115 37 10	20	2.0	5.0	.5	7,000	7,000	7,000	100	100
MH0320X	48 54 20	115 36 41	30	2.0	2.0	.5	5.5	5.5	5.5	2,000	2,000
MH0330X	48 55 48	115 38 44	20	5.0	3.0	2.0	10,000	10,000	10,000	3,000	3,000
MH0340X	48 56 38	115 37 27	20	2.0	2.0	.5	5,000	5,000	5,000	100	100
MH0350X	48 56 22	115 35 34	20	3.0	3.0	2.0	10,000	10,000	10,000	2,000	2,000
MH0360X	48 56 48	115 32 27	30	2.0	2.0	.5	7,000	7,000	7,000	50	50
MH0370X	48 53 18	115 33 2	20	0	2.0	.5	7,000	7,000	7,000	30	30
MH0380X	48 53 13	115 32 37	30	2.0	3.0	.5	>10,000	>10,000	>10,000	100	100
MH0390X	48 53 33	115 32 31	20	2.0	3.0	.5	>10,000	>10,000	>10,000	100	100
MH0400X	48 53 43	115 32 23	20	2.0	3.0	.5	>10,000	>10,000	>10,000	150	150
MH0410X	48 54 40	115 30 18	20	3.0	3.0	.5	>10,000	>10,000	>10,000	100	100
MH0420X	48 52 3	115 36 0	20	0	2.0	.5	7,000	7,000	7,000	150	150
MH0430X	48 51 48	115 35 10	20	0	1.5	1.5	1,500	1,500	1,500	100	100
MH0440X	48 51 37	115 34 20	30	0	2.0	2.0	7,000	7,000	7,000	100	100
MH0450X	48 51 43	115 35 52	30	0	3.0	3.0	7,000	7,000	7,000	700	700
MH0460X	48 51 24	115 33 18	30	0	3.0	3.0	7,000	7,000	7,000	100	100

Table 6 - Chemical Analyses of Oxalic Leach of 0.177mm (minus -80 mesh) Stream Sediments, Mount Henry Roadless Area, Montana

Sample	Be-ppm	Bi-ppm	Cd-ppm	Co-ppm	Cr-ppm	Cu-ppm	La-ppm	Mo-ppm	Nb-ppm	Ni-ppm	Pb-ppm
MH0010X	3										300
MH0020X	3										150
MH0030X	3										200
MH0040X	3										500
MH0050X	3										500
MH0060X	7										500
MH0070X	5										300
MH0080X	3										300
MH0090X	3										200
MH0100X	3										200
MH0110X	3										500
MH0120X	3										500
MH0130X	3										500
MH0140X	7										500
MH0150X	5										500
MH0160X	5										500
MH0170X	5										500
MH0190X	10										500
MH0200X	5										700
MH0210X	5										200
MH0220X	5										300
MH0230X	30										500
MH0240X	10										200
MH0250X	3										500
MH0260X	20										300
MH0270X	10										500
MH0280X	10										500
MH0290X	5										500
MH0300X	10										500
MH0310X	20										500
MH0320X	10										500
MH0330X	10										500
MH0340X	5										500
MH0350X	7										300
MH0360X	5										300
MH0370X	15										500
MH0380X	10										200
MH0390X	10										500
MH0400X	15										500
MH0410X	7										500
MH0420X	10										500
MH0430X	5										500
MH0440X	10										500
MH0450X	150										500
MH0460X	150										500

Montana - Two Rivers Stream Sediments, Mount Henry Roadless Area

Sample	Sb-ppm	Sc-ppm	Sn-ppm	Sr-ppm	V-ppm	W-ppm	X-ppm	Y-ppm	Zn-ppm	Zr-ppm	Th-ppm
MH0010X	N	<10	50	200	200	150	100	100	1,500	300	N
MH0020X	10	<10	50	200	200	150	<20	2,000	100	200	N
MH0030X	<10	<10	50	200	200	150	30	1,000	150	200	N
MH0040X	<10	<10	50	200	200	150	150	1,000	200	200	N
MH0050X	10	10	20	200	200	200	200	1,000	200	200	N
MH0060X	10	<20	500	200	200	200	200	200	500	200	N
MH0070X	<10	<10	300	300	200	200	200	200	500	200	N
MH0080X	<10	<10	200	200	150	150	150	150	2,000	150	N
MH0090X	<10	<10	50	200	150	300	300	500	500	300	N
MH0100X	N	N	20	200	200	200	200	1,000	1,000	1,000	N
MH0110X	N	N	20	200	200	200	200	200	500	500	N
MH0120X	N	N	30	200	200	200	200	200	500	500	N
MH0130X	N	N	50	500	300	300	300	300	500	500	N
MH0140X	N	N	50	700	200	200	200	200	500	500	N
MH0150X	N	N	50	700	300	300	300	300	700	700	N
MH0160X	10	10	50	200	200	200	200	200	200	200	N
MH0170X	10	10	50	200	200	200	200	200	200	200	N
MH0190X	10	10	50	200	200	200	200	200	200	200	N
MH0200X	15	15	50	200	200	200	200	200	200	200	N
MH0210X	10	10	<20	300	70	70	70	70	700	700	N
MH0220X	10	10	700	1,000	1,000	1,000	1,000	1,000	1,500	1,500	N
MH0230X	10	10	500	500	200	200	200	200	500	500	N
MH0240X	10	10	300	300	200	200	200	200	500	500	N
MH0250X	15	15	700	700	300	300	300	300	700	700	N
MH0260X	10	10	500	500	200	200	200	200	1,000	1,000	N
MH0270X	20	>10	500	500	200	200	200	200	500	500	N
MH0280X	15	15	500	500	200	200	200	200	500	500	N
MH0290X	15	15	500	500	200	200	200	200	500	500	N
MH0300X	15	15	500	500	200	200	200	200	500	500	N
MH0310X	10	10	1,000	1,000	200	200	200	200	1,000	1,000	N
MH0320X	10	10	500	500	200	200	200	200	500	500	N
MH0330X	10	10	700	700	300	300	300	300	700	700	N
MH0340X	10	10	300	300	200	200	200	200	500	500	N
MH0350X	10	10	300	300	200	200	200	200	500	500	N
MH0360X	15	15	200	200	200	200	200	200	300	300	N
MH0370X	<10	<10	<20	500	500	500	500	500	300	300	N
MH0380X	<10	<10	<20	500	500	500	500	500	300	300	N
MH0390X	<10	<10	<20	500	500	500	500	500	300	300	N
MH0400X	<10	<10	<20	500	500	500	500	500	300	300	N
MH0410X	<10	<10	<20	500	500	500	500	500	300	300	N
MH0420X	10	10	10	200	200	200	200	200	200	200	N
MH0430X	10	10	10	200	200	200	200	200	200	200	N
MH0440X	10	10	10	200	200	200	200	200	200	200	N
MH0450X	10	10	10	200	200	200	200	200	200	200	N
MH0460X	10	10	10	200	200	200	200	200	200	200	N

Montana--continued

Sample,	Latitude	Longitude	Fer- ret.	Mg- ret.	Ca- ret.	Ti- ret.	Mn- ret.	Ag- ret.	As- ret.	Ba- ret.	S
MH0470X	48 51 21	115 33 21	20	3.0	2.0	.5	5,000	5,000	100	2,000	
MH0480X	48 51 36	115 32 30	20	3.0	5.0	.3	7,000	7,000	150	2,000	
MH0490X	48 51 44	115 32 28	20	3.0	3.0	.5	5,000	5,000	700	1,500	
MH0500X	48 51 50	115 35 33	20	2.0	3.0	.3	5,000	5,000	100	2,000	
MH0510X	48 52 2	115 35 54	20	3.0	3.0	.3	5,000	5,000	200	2,000	
MH0520X	48 51 52	115 36 55	20	3.0	2.0	.5	7,000	7,000	50	3,000	
MH0530X	48 51 34	115 35 10	20	3.0	2.0	.5	7,000	7,000	100	2,000	
MH0530X	48 54 6	115 34 53	20	3.0	2.0	.5	2,000	2,000	70	500	
MH0540X	48 55 9	115 35 37	20	3.0	2.0	.3	3,000	3,000	70	2,000	
MH0550X	48 52 45	115 36 12	20	3.0	3.0	.5	2,000	2,000	200	1,000	
MH0570X	48 54 41	115 35 9	30	3.0	3.0	.3	3,000	3,000	100	1,500	
MH0600X	48 54 20	115 31 0	20	2.0	2.0	.5	7,000	7,000	50	3,000	
MH0610X	48 54 35	115 30 46	20	2.0	3.0	.2	10,000	10,000	100	2,000	
MH0620X	48 54 25	115 31 8	20	2.0	1.0	.2	5,000	5,000	70	1,000	
MH0640X	48 52 21	115 29 38	20	2.0	5.0	.5	10,000	10,000	200	5,000	
MH0650X	48 52 18	115 29 35	20	2.0	5.0	.3	>10,000	>10,000	200	5,000	
MH0660X	48 52 21	115 28 50	20	3.0	5.0	.3	7,000	7,000	150	2,000	
MH0670X	48 52 18	115 28 53	20	3.0	5.0	.3	10,000	10,000	150	3,000	
MH0680X	48 50 4	115 27 40	20	3.0	3.0	.7	10,000	10,000	150	1,500	
MH0690X	48 50 15	115 29 8	15	2.0	5.0	.3	>10,000	>10,000	500	7,000	

Table 6 - Chemical Analyses of Oxalic Leach of 0.177 mm (minus -80 mesh) Stream Sediments, Mount Henry Roadless Area, Montana--continued

Sample	Be-ppm	Bf-ppm	Cd-ppm	Co-ppm	Cr-ppm	Cu-ppm	La-ppm	Mo-ppm	Nb-ppm	Ni-ppm	Pb-ppm	S
MH0470X	5	N	N	300	300	300	700	500	200	200	500	500
MH0480X	10	3	200	300	500	500	500	500	500	200	500	500
MH0490X	5	3	200	300	500	500	500	500	500	200	500	500
MH0500X	10	3	200	300	500	500	500	500	500	200	500	500
MH0510X	7	3	200	300	500	500	500	500	500	200	500	500
MH0520X	5	70	200	300	500	700	1,000	15	20	300	500	500
MH0530X	10	70	200	300	500	500	700	200	20	150	700	700
MH0530X	3	70	200	300	500	500	700	200	20	300	500	500
MH0540X	5	100	200	300	500	500	200	500	500	200	500	500
MH0550X	3	70	300	300	500	700	200	500	500	200	500	500
MH0570X	10	70	200	300	500	700	1,000	15	20	300	500	500
MH0600X	3	70	200	300	500	500	700	200	20	150	700	700
MH0610X	10	70	150	200	500	500	200	500	500	100	500	500
MH0620X	3	70	100	500	500	500	500	500	500	100	500	500
MH0640X	10	100	300	300	500	500	500	500	500	100	500	500
MH0650X	10	70	150	300	500	500	500	500	500	100	500	500
MH0660X	7	100	300	300	500	500	500	500	500	100	500	500
MH0670X	7	70	200	300	500	500	500	500	500	100	500	500
MH0680X	10	70	200	300	500	500	500	500	500	100	500	500
MH0690X	10	100	200	300	500	500	500	500	500	100	500	500

Table 6 - Chemical Analyses of Oxalic Leach of 0.177 mm (minus -80 mesh) Stream Sediments, Mount Henry Roadless Area, Montana—continued

Sample	Sb-ppm s	Sc-ppm s	Sn-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s
MH0470X	N	15	N	500	300	500	500	200	200
MH0480X	N	10	N	1,000	300	500	500	200	200
MH0490X	N	10	N	500	300	300	<500	150	150
MH0500X	N	15	N	700	200	1,500	N	300	300
MH0510X	N	10	N	700	200	700	<500	300	300
MH0520X	N	20	N	500	200	1,000	N	600	600
MH0530X	N	15	N	500	300	500	N	300	300
MH0530X	N	10	N	500	200	300	<500	100	100
MH0540X	N	10	N	500	200	700	N	300	300
MH0550X	N	10	N	700	200	50	<500	200	200
MH0570X	N	15	N	500	300	1,500	N	300	300
MH0600X	N	10	N	200	300	150	N	200	200
MH0610X	N	10	N	300	200	500	<500	200	200
MH0620X	N	10	N	<200	300	50	N	150	150
MH0640X	N	10	N	700	300	500	N	300	300
MH0650X	N	20	N	700	300	300	N	300	300
MH0660X	N	10	N	200	200	50	N	200	200
MH0670X	N	10	N	300	200	200	N	200	200
MH0680X	N	10	N	300	200	200	N	300	300
MH0690X	N	100	N	1,000	1,000	1,000	N	300	300